ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Animal Abstract **Element Code:** AAABH01170
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CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Rana pipiens*
COMMON NAME: Northern Leopard Frog
SYNONYMS: *Rana pipiens* complex
FAMILY: Ranidae

AUTHOR, PLACE OF PUBLICATION: Schreber 1782. Naturfursher, Halle 18:182.

TYPE LOCALITY: White Plains, New York (Schmidt 1953 *in* Degenhart).

TYPE SPECIMEN: Neotype UMMZ 71365, Fall Creek, Etna, Tompkins County, New York

TAXONOMIC UNIQUENESS: Large genus including Old and New World Species. *Rana pipiens* complex recently separated, contains nearly 20 species within North America, 6 species within Arizona (5 native and 1 introduced).

DESCRIPTION: Slim green or brownish, with well-defined, pale-bordered, oval or round dark spots on back, white to cream below. White stripe on upper jaw. Well-defined, pale dorsolateral folds that are continuous and not angled inward. "Voice is "low 'motorboat' or snore like sound interspersed with grunting and chuckling, lasting about 1-5 seconds. Choruses are a medley of moaning, grunting, and chuckling that suggests the sounds made by rubbing a well-inflated rubber balloon. Paired vocal sacs expand over the forelimbs" (Stebbins 1985). There is usually one spot on the head anterior to the eyes. Few or no tubercules on the dorsal and lateral body surface. Mean SVL in males is 68.3 mm (2.7 in) and in females 74.2 mm (2.92 in). The eardrum is without a light center. During breeding season the males have a swollen, darkened thumb base and loose skin between the jaw and the shoulder. Males are usually smaller in size. The tadpole has coarse indistinct mottling on the tail. The distal half of the tail tends to darken approaching metamorphosis.

Color variations include the Burnsi variant, which may be found in either brown or green and does not have any dorsal spots. It has spots or bars on the limbs and may have black stippling on the back and sides. The second variant Kandiyohi, is brown with dashes of white and brown or black. The spots on the back and legs are still discernable, as well as the dorsolateral fold (LeClere).

AIDS TO IDENTIFICATION: *R. pipiens* has a complete supralabial stripe, complete dorsolateral folds uninterrupted and undeflected in the sacral region. Adult *R. pipiens* may have green pigment in the groin region, and males possess vestigial oviducts. The posterior

surfaces of the thighs in *R. chiricahuensis* have numerous small papilla, each surrounded by cream colored skin. Adult *R. chiricahuensis* have a mottled venter, and males along the southern Arizona border have vestigial oviducts. *R. berlandieri* is native to New Mexico and has been successfully introduced in recent years to southwestern Arizona in the Lower Colorado River near Yuma and the Gila and Salt Rivers as far east as Phoenix. Males unlike *R. yavapaiensis*, possess prominent vestigial oviducts (Platz 1988). Brown specimens of the Northern leopard frog differ from pickerel frogs by having round spots scattered randomly about the back, and a greenish wash on the thighs. *Rana catesbeiana* lacks dorsolateral folds and has a plain unicolored dorsum. *Hyla regilla* has toe pads. *Rana boylii* lacks dorsolateral folds and has pale triangle on snout. *Rana mucosa* lacks dorsolateral folds and has yellow on the underside of the legs, smoother skin and dark tipped toes. *Rana aurora* has less distinct dorsolateral folds, spotted with a less uniform pattern, a less pointed snout and red or yellow under the hind legs.

ILLUSTRATIONS: Color drawing (Stebbins 1985: plate 15)
Color photo (Degenhart 1996: plate 25)
Color photo (*In* http://animaldiversity.ummz.umich.edu/media/herp/069.herp.jpg)
Color photo (Hammerson *in* http://coloherp.org/geo/species/sperapi.html)
Color photo of green burnsi phase (Iowa Herpetology *in* http://www.herpnet.net/Iowa-Herpetology/images/Frogs_Toads/N.Leopard_frog_Burnsi.jpg)
Color photo of brown burnsi phase (Iowa Herpetology *in* http://www.herpnet.net/Iowa-Herpetology/images/Frogs_Toads/N.Leopard_frog_Burnsi_B.jpg

TOTAL RANGE: Great Basin Region from northern Arizona, western Nevada and Washington to southern Canada; east to southeast Canada and New Jersey.

RANGE WITHIN ARIZONA: Northern and central Arizona.

SPECIES BIOLOGY AND POPULATION TRENDS

BIOLOGY: Found in a variety of habitats, most cold-adapted of all leopard frogs. May forage far from water, when frightened seeks water in a zigzag pattern of jumps. Like most frogs, leopard frogs are sluggish animals, often staying immobile for long periods of time. Sometimes the males call while underwater. They produce a low-pitched snore often followed by a chuckling noise, or a deep *urr, urr, urr*. They have internal vocal sacs, so their throats do not appear to move when they call. When they move far from a body of water they may absorb dew to keep moist. *Rana pipiens* hibernates in deep water. Juvenile leopard frogs often cluster together.

REPRODUCTION: Breeds mid-March to early June. In most areas, sexually mature in 2 years. The male leopard frog identifies the female by their distinctively plump physique. The males, which are usually smaller in size, use their specialized thumbs to clasp females during mating. Mating occurs in the water while the female swims with the male attached to her back. By releasing her eggs, females stimulate milt ejaculation by the male and the eggs are fertilized. A single female may lay 3,000 to 5,000 eggs in one round mass that measures 3-6 in (7.5-15 cm) across. Tadpoles hatch in about a week and metamorphose in about three months. Aquatic larvae have been found to over winter in some areas (TNC 1988).

FOOD HABITS: Small invertebrates; rarely eats small vertebrates. Larvae eat algae, plant tissue, organic debris, and probably small invertebrates (TNC 1988).

HABITAT: Variety of habitats including grassland, brush land, woodland, and forest ranging high into mountains, usually in permanent waters with rooted aquatic vegetation; also frequents ponds, canals, marshes, springs, and streams.

ELEVATION: 0-11,000 ft (0-3353 m) Stebbins 1985. Based on records from the Heritage Data Management System, elevation in Arizona ranges from 2,640-9,155 ft (805-2790 m) (AGFD, unpublished data accessed 2002).

PLANT COMMUNITY: Grassland, brush land, woodland, and forest land.

POPULATION TRENDS:

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS:

STATE STATUS: WSC (AGFD, WSCA in prep)
[State Candidate AGFD, TNW 1988]

OTHER STATUS: Forest Service Sensitive (USDA, FS Region 3 1999)
[Forest Service Sensitive USDA, FS Region 3 1988]
Group 2 (NNFWD, NESL 2000)
[Group 4 NNFWD, NESL 1994]

MANAGEMENT FACTORS: Two of the main threats to this species are habitat destruction and pollution. Also they are collected for biological supply houses and fishermen use them for bait.

PROTECTIVE MEASURES TAKEN: Closed season, Arizona Game and Fish Department.

SUGGESTED PROJECTS: Distribution, habitat, population, and life history studies.

LAND MANAGEMENT/OWNERSHIP: BIA – Fort Apache Reservation and Navajo Nation; NPS – Canyon de Chelly national monument, Glen Canyon National Recreation Area, Grand Canyon National Park; USFS – Apache-Sitgreaves, Coconino and Kaibab National Forests; AGFD – Lamar Haines Memorial Wildlife Area; Private.

SOURCES OF FURTHER INFORMATION

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MAJOR KNOWLEDGEABLE INDIVIDUALS:

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ADDITIONAL INFORMATION:

Northern leopard frog coexists, occasionally hybridizing, with Plains leopard frog in southeastern Colorado. Also hybridizes with Chiricahua leopard frog (*Rana chiricahuensis*) in areas of central Arizona and western New Mexico where their ranges overlap (Stebbins 1985).

Leopard frogs are often used for dissection in biology classes. Unfortunately, a well meaning teacher and lab aides may release unneeded animals, perhaps believing it is kinder than outright killing. However, frogs kept in close quarters such as shipping crates and overcrowded aquaria may get a disease called “red-leg” caused by an *Aeromonas* bacteria. Releasing sick frogs infect otherwise healthy local populations and may cause sudden population collapses. During the 1970’s in the Chicago Region, Leopard Frogs suffered a severe decline but appear to be rebounding where suitable habitat is still available.

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